

- ~~13~~ a shape memory alloy portion positioned adjacent the catheter sidewall portion<sup>ans</sup> having a lattice network of individually configured shape memory alloy<sup>FI</sup> micro-actuators;
- ~~F~~ connecting rings<sup>bet</sup> for separating the micro-actuators into segmented joints; and an addressable thin-film heater element in communication with the shape memory alloy portion for activation of selected micro-actuators, wherein the shape memory alloy portion includes at least one micro-actuator that expands upon heating by an addressable heater element and at least one micro-actuator that contracts upon heating by another addressable heater element.

*C1*  
2. ~~27~~<sup>1</sup>.(Amended) The shape memory alloy catheter as recited in claim ~~26~~<sup>1</sup> wherein the shape memory alloy portion includes at least one addressable heater element to heat a selected combination of at least one micro-actuator for varying the relative stiffness of the shape memory alloy portion.

*C2*  
4. ~~29~~<sup>1</sup>.(Amended) The shape memory alloy catheter as recited in claim ~~26~~<sup>1</sup> wherein the shape memory alloy portion surrounds at least a portion of the catheter body.

*C2*  
30.(Amended) A shape memory alloy catheter comprising:  
a catheter body formed with a sidewall portion;  
a shape memory alloy portion positioned adjacent the catheter sidewall portion having a lattice network of individually configured shape memory alloy micro-actuators;  
an addressable thin-film heater element in communication with the shape memory alloy portion for activation of selected micro-actuators; and  
a micro-fabricated sensor.

*C3*  
5. ~~32~~<sup>1</sup>.(Amended) The shape memory alloy catheter as recited in claim ~~26~~<sup>1</sup> wherein the shape memory alloy is NiTi.

*C4*  
74.(Amended) A shape memory alloy catheter comprising:

a catheter body formed with a sidewall portion;  
 a shape memory alloy portion positioned adjacent the catheter sidewall portion  
 having a lattice network of individually configured shape memory alloy  
 micro-actuators;  
 an addressable thin-film heater element in communication with the shape memory  
 alloy portion for activation of selected micro-actuators; and  
 a micro-fabricated transducer.

6-75.(Amended) The shape memory alloy catheter of claim 26 wherein at least two  
 of the individually configured shape memory alloy micro-actuators are formed from a  
 single piece of shape memory alloy material.

Please add the following new claims:

7-76.(New) The shape memory alloy catheter as recited in claim 26 further  
 including a micro-fabricated sensor.

8-77.(New) The shape memory alloy catheter of claim 26 further including a  
 micro-fabricated transducer.

78.(New) The shape memory alloy catheter as recited in claim 30 wherein the  
 micro-actuators are arranged in segmented joints.

79.(New) The shape memory alloy catheter as recited in claim 78 further  
 including connecting rings for separating the micro-actuators into segmented joints.

10-80.(New) The shape memory alloy catheter as recited in claim 79 wherein the  
 shape memory alloy portion includes at least one micro-actuator that expands upon  
 heating by an addressable heater element and at least one micro-actuator that contracts  
 upon heating by another addressable heater element.

*Sub E2* 81.(New) The shape memory alloy catheter as recited in claim 30 wherein the shape memory alloy portion includes at least one addressable heater element to heat a selected combination of at least one micro-actuator for varying the relative stiffness of the shape memory alloy portion.

*13* ~~82~~.(New) The shape memory alloy catheter as recited in claim <sup>*12*</sup>~~81~~ wherein the shape memory alloy portion may be thermally activated to have a different stiffness relative to the catheter sidewall portion.

*Sub E3* 83.(New) The shape memory alloy catheter as recited in claim 30 wherein the shape memory alloy portion surrounds at least a portion of the catheter body.

*CS* *19* ~~84~~.(New) The shape memory alloy catheter as recited in claim 30 wherein the shape memory alloy is NiTi.

~~85~~.(New) The shape memory alloy catheter of claim 30 further including a micro-fabricated transducer.

~~86~~.(New) The shape memory alloy catheter of claim 30 wherein at least two of the individually configured shape memory alloy micro-actuators are formed from a single piece of shape memory alloy material.

~~87~~.(New) The shape memory alloy catheter as recited in claim 74 wherein the micro-actuators are arranged in segmented joints.

*Sub E4* 88.(New) The shape memory alloy catheter as recited in claim 87 further including connecting rings for separating the micro-actuators into segmented joints.

*18* ~~89~~.(New) The shape memory alloy catheter as recited in claim <sup>*17*</sup>~~88~~ wherein the shape memory alloy portion includes at least one micro-actuator that expands upon heating by an addressable heater element and at least one micro-actuator that contracts upon heating by another addressable heater element.

Sub E57 90.(New) The shape memory alloy catheter as recited in claim 74 wherein the shape memory alloy portion includes at least one addressable heater element to heat a selected combination of at least one micro-actuator for varying the relative stiffness of the shape memory alloy portion.

21. 91.(New) The shape memory alloy catheter as recited in claim <sup>20</sup>90 wherein the shape memory alloy portion may be thermally activated to have a different stiffness relative to the catheter sidewall portion.

CS call Sub E67 92.(New) The shape memory alloy catheter as recited in claim 74 wherein the shape memory alloy portion surrounds at least a portion of the catheter body.

93.(New) The shape memory alloy catheter as recited in claim 74 further including a micro-fabricated sensor.

94.(New) The shape memory alloy catheter as recited in claim 74 wherein the shape memory alloy is NiTi.

95.(New) The shape memory alloy catheter of claim 74 wherein at least two of the individually configured shape memory alloy micro-actuators are formed from a single piece of shape memory alloy material.

#### REMARKS

Claims 26-30, 32, and 74-95 are pending. Claims 23-25 has been canceled.  
Claims 26, 27, 29, 30, 32, 74, and 75 have been amended as shown in the Appendix.  
Claims 76-95 have been added.

Appreciation is expressed for the indication of allowability of claims 26, 30, and 74. In response, the claims have been amended as follows:

(1) Claim 26 has been amended to explicitly include the limitations of claims 23-25 and to therefore put claim 26 in condition for allowance. The applicant respectfully submits that this amendment of claim 26 in no way changes the scope of coverage of